## REMARKS

Reconsideration of this application and the rejection of claims 1-24 are respectfully requested. Applicants have attempted to address every objection and ground for rejection in the Office Action dated January 20, 2010 (Paper No. 20100116) and believe the application is now in condition for allowance. Alternatively, the claims are submitted to be in better form for appeal. The claims have been amended to more clearly describe the present invention.

Claims 1-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of U.S. Patent No. 5,877,856 to Fercher and U.S. Patent No. 4,976,423 to Bates. Applicants disagree with and traverse this rejection for the following reasons.

Fercher discloses an arrangement and method for increasing contrast and optical coherence tomography by scanning an object with a dual beam. The dual beam, which has linearly polarized waves 17′ or 17″, is created by a Wollaston prism 18 as shown in Fig. 3 of Fercher below. Fercher further discloses a measurement arm that extends from the beam splitter 7 to the scattering location 4 (Col. 3, lines 13-15), a reference arm that extends from the beam splitter 7 to the deflecting mirror 9 (also called reference mirror 9) and an output arm that is positioned after the beam splitter 7 and includes the photo detector 11. Fercher uses polarization in the measurement arm for illuminating two adjacent points 14′ and 14″ of the observed object with an OCT device undergoing a scanning observation.

Bates discloses an optical coherence measuring device that includes, among other things, a beam splitter 4 and a beam splitting polarizer 6, i.e., Wollaston prism. As

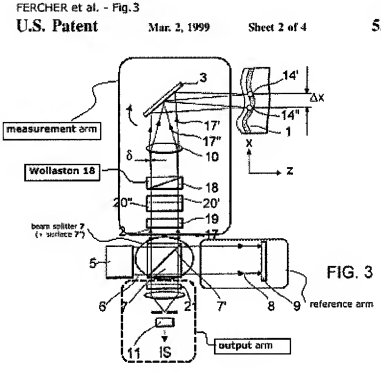
shown in FIG. 1, the beam splitting polarizer 6 spacially divides the beam into two different components that are detected by detectors 8 and 10.

In contrast, amended claim 1 recites, among other things, a device for measuring the contrast of fringes in a full field Michelson interferometer that includes "means for deflecting two incoming signals issued from the reference arm and the measurement arm of the Michelson interferometer having perpendicular polarizations in at least two different emerging directions and a beam detector, said means for deflecting being arranged between the means for separating and said beam detector within the output arm of the full-field Michelson interferometer" where "said means for deflecting [is] . . . oriented so that at least two interferometric images of an observed point are formed through an interference of projection of the reference signal and the measurement signal on an axis of said means for deflecting and respectively an interference of projection of the reference signal and the measurement signal on another axis of said means for deflecting." The cited combination fails to disclose or suggest such subject matter.

In the Action, the Examiner states that Fercher discloses a device for measuring the contrast of fringes in a Michelson interferometer including "means for deflecting (7) two incoming perpendicular polarizations in two different directions" where "said means for deflecting (7) [is] . . . arranged within the output arm of the Michesoon interferometer . . ." (see the Office Action, pages 2-3). Applicants disagree.

As shown in FIG. 3 of Fercher below, a Wollaston prism (18) is clearly positioned between the beam splitter (7) and the observed object (1), i.e. in the measurement arm. The only

components positioned between the beam splitter (7) and the detector (11) in the output arm are the polarizer (21) or lens/optical system (16 in other figs.). Fercher specifically discloses that the interferometer signal "IS" is at the output or output arm (Col. 4, lines 57-62), which is on the opposite side of the beam splitter 7 from the Wollaston prism.




Thus, Fercher fails to disclose a device with deflecting means that is "arranged between" the beam splitter (7) and beam detector (11), i.e. within the output arm as now explicitly defined in amended claim 1.

Moreover, Fercher discloses an interference between two beams (15' and 15") "focussed at two points [14' and 14"] located at a certain distance from one another, that is by an "interferometric dual beam" as disclosed at Col. 3, line 60. Also as stated in Col. 4 lines 40-

43, "the light bundles 15' and 15" are superposed . . . with the reference light bundle 8 and directed jointly to the photo-detector 11." (Emphasis Added). Thus, Fercher clearly discloses one interferometric image, in which "differences in the object characteristics of adjacent points are imaged," as stated in Col. 4 lines 56-57. In support, Fercher explains in Col. 4 lines 44-51 that if the two light bundles 15' and 15" have been changed by the object to the same degree . . . they undergo destructive interference at the photodetector 11 and . . . the image signal I(x,z) is zero . . . ."

In contrast, amended claim 1 now recites, among other things, a device with deflecting means (W) that is oriented so that at least two interferometric images (Av Ah or A, B, C, D) of an observed point [i.e. even only one point] are formed through an interference of projection of said reference signal (a1) and measurement signal (a2) on one of the axes of the deflecting means (W) and respectively an interference of projection of the reference signal (a1) and the measurement signal (a2) on the other axis of the deflecting means (W). Thus, amended claim 1 recites a device where at least two interferometric images (Ah and AV) are produced from the optical characteristics of one observed point. As stated above, Fercher discloses one interferometric image and therefore fails to disclose the subject matter of amended claim 1.

Additionally it is important to note that Fercher is directed to "improving contrast" by enhancing the differences of adjacent points into one interferometric image of these differences, while proposing no special optical treatment of the OCT signal. The claimed invention as recited in amended claim 1, on the other hand, is directed to obtaining a more efficient treatment of one measurement signal (a2) coming from one observed point. This is

obtained by producing two distinct interferences of this one measurement signal, each with the reference signal (a1), thereby detected as two different interferometric images.

Nothing in Fercher would suggest to a person of ordinary skill in the art to try another method, least of all to implement the features recited in amended claim 1.

A person of ordinary skill in the art would not combine Fercher with Bates to achieve the claimed invention where there is no motivation to make such a combination. Bates does not remedy the deficiencies of Fercher. Specifically, Bates aims to obtain a "measurement of coherence of optical radiation," which is an "indicator of the bandwidth of a quasi-monochromatic source" as stated in the Abstract and Col. 1, lines 18-20. Such a measurement may for instance be used for qualifying a monochromatic source such as a laser diode, i.e. a narrow bandwidth source.

In contrast as stated above, Fercher's objective of "improving contrast" is obtained by enhancing the differences of adjacent points into one interferometric image of these differences, while proposing no special optical treatment of this OCT signal. Also, the claimed invention is directed to improving the contrast based on an OCT system, which may use a "polychromatic illumination with a wider spectrum, for example white light", i.e. a large bandwidth possibly up to the whole visible spectrum, as stated on page 16, lines 12-20 of Applicants' specification.

Accordingly, a person of ordinary skill in the art would not combine Fercher with Bates to achieve the claimed invention where such a person would be deterred from such a combination because of incompatibility of the features disclosed in Fercher and Bates.

Even if combined, Bates does not remedy the deficiencies of Fercher discussed above. Specifically, Bates discloses a device where a Wollaston prism can be used as an embodiment of a beam splitting polarizer, as recited in Col. 5, lines 52-53, for separating two different polarized parts x' and y' of a beam towards two different detectors 8 and 10 respectively. Bates does not disclose a Wollaston prism used for producing two distinct interferences nor at least two interferometric images out of these polarized parts x' and y'.

Amended claim 5 recites, among other things, that the measuring device of claim 1 includes an additional or further "means for separating a beam comprising a reference signal and a measurement signal . . . ." In contrast, both Fercher and Bates disclose only a single means of splitting a beam, i.e., single Wollastan prism. The cited combination therefore does not disclose or suggest the subject matter of amended claim 5.

For at least these reasons, Applicants submit that amended claim 1, and the claims that depend therefrom, are each patentably distinguished over the combination of Fercher and Bates and in condition for allowance.

Amended claim 11 includes similar subject matter to amended claim 1, and recites, among other things, a method for measuring the contrast fringes in a full field Michelson interferometer that includes "introducing a reference beam and a measurement beam into the output arm from a further beam splitter and deflecting two incoming beams issued from the reference arm and the measurement arm of the Michelson interferometer having perpendicular polarizations in at least two different emerging directions producing at least two interferometric images by means of a Wollaston prism situated between said beam splitter and a

beam detector in said output arm of the full-field Michelson interferometer through an interference of projection of said reference beam and said measurement beam on an axis of the Wollaston prism and respectively an interference of projection of said reference beam and said measurement beam on another axis of the Wollaston prism."

As stated above, the combination of Fercher and Bates fails to disclose a Wollaston prism, i.e., deflecting means, that is in the output arm between the beam splitter and the beam detector, and also fails to disclose producing at least two interferometric images. The cited combination therefore fails to disclose or suggest the subject matter of amended claim 11.

Amended claim 14 recites, among other things, "reintroduction of the two sub-beams thus processed into the Wollaston prism such that, on output from the latter, there are then four light beams forming four interferometric images of the field." As stated above, the cited combination fails to disclose or suggest producing at least two interferometric images and therefore does not disclose the step of forming "four interferometric images."

Accordingly, Applicants submit that amended claim 11, and the claims that depend therefrom, are each patentably distinguished over the combination of Fercher and Bates and in condition for allowance.

Similarly, amended claim 20 recites, among other things, a system for examining the eye by *in vivo* tomography that includes "means for deflecting being positioned between said means for separating and said means of detection in said output arm, said means for deflecting being oriented so that at least two interferometric images of an observed point are formed through an interference of projection of said reference signal and said measurement

signal on an axis of said means for deflecting and respectively an interference of projection of said reference signal and said measurement signal on another axis of said means for deflecting." As stated above, the combination of Fercher and Bates fails to disclose or suggest such subject matter.

Accordingly, Applicants submit that amended claim 20, and the claims that depend therefrom, are each patentaby distinguished over the combination of Fercher and Bates and in condition for allowance.

Claims 17-20 and 22-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Fercher, Bates and U.S. Publication No. 2003/0218755 to Wei et al. As stated above, the combination of Fercher and Bates fails to disclose or suggest the subject matter of amended claims 1, 11 and 20. Wei discloses an OCT optical scanner that is cited to teach a full-field Michelson interferometer and the step of carrying out the correction of the wave fronts originating from the eye as well as those reaching the eye. Wei does not remedy the deficiencies of Fercher. Specifically, Wei does not disclose or suggest a beam deflector that is located in the output arm between the beam splitter and the photo-detector and a device that produces at least two interferometric images.

Applicants therefore submit that claims 17-20 and 22-24 are each patentably distinguished over the combination of Fercher, Bates and Wei and in condition for allowance.

Claim 21 is rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Fercher, Bates, Wei and U.S. Patent No. 5,883,692 to Agonis et al. Claim 21

depends from amended claim 20. As stated above, the combination of Fercher, Bates and Wei fails to disclose or suggest the subject matter of amended claim 20. Agonis is cited as disclosing a citing device including at least one moving target having a programmable shape or trajectory that is displayed at a screen during an examination. Agonis does not remedy the deficiencies of Fercher and Wei.

Accordingly, Applicants submit that claim 21 is patentably distinguished over the combination of Fercher, Bates, Wei and Agonis for at least the reasons provided above and for the further reason that the cited combination does not disclose or suggest the subject matter of claim 21 in combination with the subject matter of amended claim 20.

Applicants submit that in view of the above-identified amendments and remarks, the claims in their present form are patentably distinct over the art of record. Allowance of the rejected claims is respectfully requested. In the alternative, the claims are submitted to be in better form for appeal. Should the Examiner discover there are remaining issues which may be resolved by a telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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